

REMARKS

Summary of Claim Status

Claims 23-35 are pending in the present application. Claims 23-32 are rejected for the reasons discussed below. Claims 33-35 are allowed. Applicants thank the Examiner for this acknowledgement of patentable subject matter.

Applicants respectfully request favorable reconsideration of the claims and withdrawal of the pending rejections in light of the following discussion.

Rejections Under 35 U.S.C. § 102

Claims 30-32 are rejected under 35 U.S.C. § 102(e) as being anticipated by Schultz et al., U.S. Patent No. 6,191,614 ("Schultz"). With respect to Claim 30, the Examiner stated:

Schultz et al. teach the claimed method in which FPGA configuration data circuitry is connected with a CRC circuit in order to identify configuration data errors. When the error is detected, partial reconfiguration capability is used to reconfigure only the portion in error. (Column 2 lines 39-56, column 2 lines 27-36)

Office Action at page 3.

Applicants thank the Examiner for an explicit and clear description of how the reference is being read. Applicants, however, respectfully traverse this rejection. In particular, Applicants respectfully submit that Schultz does not teach or disclose the invention recited in Claim 30.

The Examiner alleges that Schultz teaches that when a configuration data error is detected by a CRC circuit, partial reconfiguration is used to reconfigure only the portion in error. Applicants respectfully disagree. Schultz, in fact, merely teaches that when a CRC register 435 generates an error signal to notify the user that a transmission error has occurred, thereby facilitating error detection. See Schultz at col. 14, lines 10-26. That is, the CRC register of Schultz is merely "used to detect errors during the transmission of data/command words," and there is no

teaching in Schultz that the CRC register is used to reconfigure only the portion containing the error. *Id.*

In contrast, Claim 30 recites identifying the portion of the configurable data containing the error, and reconfiguring only the portion of the configuration data containing the error. Schultz does not teach or disclose such steps of identifying and reconfiguring. While Schultz does disclose partial reconfiguration, there is no teaching that only the portion of the configuration data containing an error is reconfigured. In fact, Schultz only describes an error signal to the user when an error is detected. It is then up to the user to respond to an error.

Therefore, Applicants believe Claim 30 is allowable over Schultz, and Applicants respectfully request allowance of Claim 30.

Claims 31 and 32 depend from Claim 30 and thus include all of the limitations of Claim 30. For the reasons set forth above, Applicants believe Claim 30 is allowable. Therefore, for at least the same reasons, Applicants believe Claims 31 and 32 are also allowable, and allowance of these claims is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 23-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Alfke, U.S. Patent No. 6,104,211 ("Alfke"), in view of Kwiat, U.S. Patent No. 5,931,959. Applicants respectfully traverse this rejection.

Applicants submit that Alfke and Kwiat, taken alone or in any combination, do not teach the invention recited in Claim 23. In particular, Claim 23 recites steps of performing a first readback of a portion of the configuration data and performing a second readback of the same portion of the configuration data. Neither Alfke nor Kwiat teaches or suggests performing such first and second readbacks.

Alfke, in fact, actually describes a system having three similarly configured PLDs 210A-C. See, e.g., Alfke at Fig. 2. A state-comparison circuit 220 periodically compares the state data from each of the PLDs 210A-C of Alfke to determine whether the state of one differs from the states of the other two, indicating an error.

See Alfke at col. 2, lines 50-67. Thus, in Alfke, configuration data is read from each of three different devices and then compared against each other. That is, Alfke detects errors by using three similarly configured devices and regularly comparing data in each of the devices to detect an error.

In contrast, Claim 23 recites a method of maintaining configuration data in a configurable device including the steps of performing a first readback of a portion of the configuration data and performing a second readback of the same portion of the configuration data. Thus, Claim 23 indicates that a particular portion of configuration data in a device is read back twice, and first and second checksum values are compared to determine if they are not identical. As explained above, Alfke does not disclose or even suggest such a method. Alfke instead uses a comparison circuit to compare the configuration of three separate devices. Kwiat does not even mention the term “readback” or any similar term, much less teach or suggest a method including performing first and second readbacks.

Therefore, for at least the foregoing reasons, Applicants believe Claim 23 is allowable over Alfke and Kwiat, and respectfully request allowance of Claim 23.

Applicants further submit that Alfke and Kwiat, taken alone or in any combination, do not teach the invention recited in Claim 27. Claim 27 recites a method including steps of performing a readback of a portion of configuration data and generating a checksum value indicative thereof and comparing the checksum value with a predetermined master checksum value that is known to be correct. Neither Alfke nor Kwiat teaches or suggests such a method. In fact, the Examiner has not alleged that either Alfke or Kwiat teach or suggest such method steps.

In particular, Alfke does not disclose or teach any predetermined master checksum value, much less a master value that is known to be correct. As noted above, and as set forth in the Office Action, Alfke merely describes a system having a state-comparison circuit that periodically compares bits from each of three PLDs, and a bit in one PLD that is different from the others indicates an error in that PLD. Thus, in Alfke, there is no master checksum value, and the bits of the PLDs in Alfke are merely compared to each other. Furthermore, there is no master checksum

value that is known to be correct. In fact, as specifically stated in Alfke, it is possible that “none of PLDs 210A-C can be trusted to include correct state data” in certain cases. Alfke at col. 4, lines 37-39. Thus, it is possible that all the PLDs in Alfke have incorrect data in direct conflict with the requirements of Claim 27. Kwiat likewise does not disclose or suggest a master checksum value that is known to be correct.

In contrast, Claim 27 recites a method of maintaining correct configuration data in a configurable device including performing a readback of a portion of the configuration data, and comparing a generated checksum value to a predetermined master checksum value that is known to be correct. As set forth above, neither Alfke nor Kwiat teach or suggest such features. Therefore, Applicants believe Claim 27 is allowable over Alfke and Kwiat, and Applicants respectfully request allowance of Claim 27.

Claims 24-26 depend from Claim 23 and thus include all of the limitations of Claim 23. Claims 28 and 29 depend from Claim 27 and thus include all of the limitations of Claim 27. For the reasons set forth above, Applicants believe Claims 23 and 27 are allowable. Therefore, for at least the same reasons, Applicants believe Claims 24-26, 28, and 29 are also allowable, and allowance of such claims is respectfully requested.

Conclusion

In light of the above remarks, Applicants believe that Claims 23-35 are in condition for allowance, and allowance of the application is therefore requested. If action other than allowance is contemplated by the Examiner, the Examiner is respectfully requested to telephone Applicants' attorney, Justin Liu, at 408-879-4641.

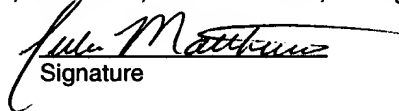
Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450, on August 1, 2005.

Julie Matthews
Name


Signature